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Teaching “Thinking Like a Lawyer”: Metacognition and Law Students

Cheryl B. Preston, Penée Wood Stewart,** and Louise R.
Moulding****

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INTRODUCTION

Even in a discipline where ambiguity is cherished, law professors are stumped when it comes to understanding the content of legal education's motto: "Teach them to think like a lawyer." For decades, scholars have groaned under the weight of trying to describe what "thinking like a lawyer" means.¹ A recently popular educational psychology construct may hold the answer: metacognition, or the process of thinking about one's thinking. Education theorists have been much more successful in defining, explaining, and testing for metacognition, than law professors have been in explaining "thinking like a lawyer."

This Article explains metacognitive skills in the context of law, reviews the limited legal scholarship that references metacognitive skills, and presents the first empirical study of the metacognitive skills of newly admitted, highly qualified law students. The data demonstrates that top law students—hardworking, overachieving college graduates with high IQs—do not have well-developed metacognitive skills. This Article then explores why metacognitive skills are so helpful in performing the tasks required in the practice of law and suggests that life-long, expert thinkers rely on developed metacognitive skills. Unfortunately for many law students who do not understand the purposes behind law professors' pedagogical techniques, Socratic Method sometimes leaves students believing that thinking like a lawyer means avoiding straight answers and promoting ambiguity. In light of this struggle, how can legal

1. Notwithstanding the persistent use of "thinking like a lawyer," the various definitions are both inconsistent and impossibly vague. To some, "thinking like a lawyer" has only to do with analysis and a way of thinking. See, e.g., Peter Toll Hoffman, *Teaching Theory Versus Practice: Are We Training Lawyers or Plumbers?*, 2012 MICH. ST. L. REV. 625, 628 (footnotes omitted) ("The concept of thinking like a lawyer is ill-defined in the literature, and subject to debate, but it usually means a particular method of thinking or analysis for understanding law."); Alex M. Johnson, Jr., *Think Like a Lawyer, Work Like a Machine: The Dissonance Between Law School and Law Practice*, 64 S. CALIF. L. REV. 1231, 1251 n.85 (1991) ("The phrase 'to think like a lawyer' today means, more or less, to be capable of independent thought, a highly prized attribute in today's hierarchical, technocratic society."). To others, it is more than that, but also includes knowing and applying skills that are needed to be a good lawyer. See, e.g., David R. Barnhizer, *The Purposes and Methods of American Legal Education*, 36 J. LEGAL PROF. 1, 20 (2011) ("I have never thought that the real meaning of 'thinking like a lawyer' represents a passive state of mind, but one involving the ability to actually function effectively as a lawyer in a dynamic and risky environment.").

educators convey what it means to “think like a lawyer”? Superb metacognitive skills go a long way toward this goal.

Studies in education have demonstrated that highly developed metacognitive skills help in converting a student into a life-long learner—one whose education and learning do not stop when he or she leaves school. Metacognitive skills improve oral communication, written communication, and comprehension of texts. In addition, metacognitive skills increase the speed and accuracy of factual analysis and, because of the increased confidence in performing these tasks, those with better metacognitive skills suffer from less anxiety about performing challenging intellectual tasks.

Legal education is in the throes of a painful revolution where it has been charged to abandon the accepted methods of a century—whether Socratic Method or merely the Langdellian Method—and remake itself.² Moreover, this metamorphosis is to take place in an economy where law school budgets are increasingly stingy and alumni without jobs are not in a position to become donors. The *MacCrate Report*, the Carnegie Report, and a plethora of other scholarship have pushed legal education from a largely cognitive endeavor to a balance with skills training.³ We argue that the one fundamental skill being overlooked in this transmutation is metacognition. If metacognition is highly relevant to legal thinking and the demands of the profession, as we assert in Part III, and if it can be taught, as we assert in Part IV, then the critical question is whether law students are likely to have already learned these lessons before graduate study or whether they need to learn them in law school.

2. Orin S. Kerr, *The Decline of the Socratic Method at Harvard*, 78 NEB. L. REV. 113, 114 (1999) (“In the place of the traditional approach is an eclectic mixture of newer approaches, including toned-down Socratic questioning, student panels, group discussions, and lectures.”).

3. WILLIAM M. SULLIVAN ET AL., EDUCATING LAWYERS: PREPARATION FOR THE PROFESSION OF LAW 21–46, 87–126 (2007) [hereinafter CARNEGIE REPORT]; ABA SECTION OF LEGAL EDUCATION AND ADMISSIONS TO THE BAR, LEGAL EDUCATION AND PROFESSIONAL DEVELOPMENT—AN EDUCATIONAL CONTINUUM, REPORT OF THE TASK FORCE ON LAW SCHOOLS AND THE PROFESSION: NARROWING THE GAP (1992) [hereinafter MACCRATE REPORT]; See also Hoffman, *supra* note 1, at 643–45 (arguing that practical training is just as important as “thinking like a lawyer,” but that this is not widely accepted in law schools); Barnhizer, *supra* note 1, at 66–74 (including practical skills training as part of a proposed curriculum plan for law schools).

Our study, reported in Part II, illustrates that, when they are promoting “skills training,” law schools should adopt teaching methods that directly teach metacognitive skills. Of special interest in the dialogue about legal education reform is the fact that metacognitive skills are taught in the use of pure Socratic Method, although more awareness of the concept of metacognition would vastly assist in the process. Though Socrates didn’t use the term, encouraging metacognitive thought was an important component of his teaching approach centuries ago.⁴ This Article is not the place to undertake a thorough defense of the highly contested issue of Socratic Method or other approaches to teaching metacognition; however, metacognition undoubtedly will become a major component in any successful law school reform and, with it, a reassessment of Socratic Method.⁵

This Article begins in Part I with an overview of the concept of metacognition and its role in enhancing thinking. We distinguish related but separate concepts and review the most

4. See, e.g., Barry Ritholtz, *How’s Your MetaCognition?*, RITHOLTZ.COM (Aug. 16, 2013, 8:45 AM), <http://www.ritholtz.com/blog/2013/08/how-your-metacognition> (“Socrates perhaps most famously declared ‘*I only know that I know nothing*,’ He was perhaps the first human to wax eloquent on metacognition. It may be counter-intuitive, but understanding one’s own ignorance is the first step to attaining knowledge.”); David Denton, *Reflection and Learning: Characteristics, Obstacles, and Implications*, 43 EDUCATION PHILOSOPHY & THEORY 838, 842 (citation omitted) (“Socrates integrated metacognitive thinking as well. For instance, Socrates recommends examining one’s thoughts and identifying gaps in one’s arguments.”). Although a number of components of Socratic Method can be tied to metacognitive skills, the most apparent is the metacognitive skill of recognizing what the thinker already knows and what will need to be learned new. An expert thinker does not reinvent the wheel but transfers knowledge of information and skill previously acquired to the task at hand and then identifies what additional knowledge is required. The correlation between this step and Socrates’ humility can be described as follows:

If what we believe so confidently could well be wrong, then the appropriate attitude ought to be humility about what we *think* we know. Humility is just what the philosopher Socrates wanted from his students in ancient Greece. . . . The Socratic Method involves teaching by asking a series of questions. By posing questions to young philosophers, Socrates was able to evoke what they knew about a topic Inevitably, the dialogues resulted in much greater clarity about what was known and what was unknown.

MICHAEL E. MARTINEZ, *LEARNING AND COGNITION: THE DESIGN OF THE MIND* 133 (2010) (citing DONALD PALMER, *LOOKING AT PHILOSOPHY: THE UNBEARABLE HEAVINESS OF PHILOSOPHY MADE LIGHTER* (3rd ed. 2001)).

5. For a brief discussion of the relationship of Socratic Method and metacognition, and the possibility that the MACCRATE REPORT, *supra* note 3, recognized skills that are metacognitive but did not so label them, see the text accompanying notes 96–97 *infra*.

recent education literature on the subject. In Part II, this Article reports the empirical results of our study, which illustrate that the metacognitive skills of many, and probably most, entering law students are weak. In Part III, this Article describes how metacognitive skills are critical to the kinds of activities law students and lawyers perform. It then reviews in Part IV extant legal literature on metacognition and the need for more consistent and rigorous work in this area, as well as current efforts to teach metacognition in some schools. The Article then concludes in Part V with suggestions for further research.

I. METACOGNITION AND THE STUDY OF THINKING

Metacognition is a construct that was first articulated by John Flavell,⁶ who later defined it as "cognition about cognitive phenomena[.]"⁷ Metacognition, so named and defined, has only recently become a focus of cognitive-developmental inquiry.⁸ Often described informally as "thinking about thinking,"⁹ metacognition is the concept that individuals can monitor and regulate their own cognitive processes and thereby improve the quality and effectiveness of their thinking. Teaching metacognitive skills to thinkers is similar

6. John H. Flavell, *Metacognitive Aspects of Problem Solving*, in THE NATURE OF INTELLIGENCE 231, 232 (Lauren B. Resnick ed., 1976). Flavell provided illustrative examples of the thinking about thinking involved in metacognition:

[I]f I notice that I am having more trouble learning A than B; if it strikes me that I should double-check C before accepting it as a fact; if it occurs to me that I had better scrutinize each and every alternative in any multiple-choice type task situation before deciding which is the best one; if I become aware that I am not sure what the experimenter really wants me to do; if I sense that I had better make a note of D because I may forget it; if I think to ask someone about E to see if I have it right.

Id.

7. John H. Flavell, *Metacognition and Cognitive Monitoring: A New Area of Cognitive-Developmental Inquiry*, 34 AM. PSYCHOL. 906, 906 (Oct. 1979).

8. While searching Google Scholar citations for Flavell's 1979 article, we found 269 citations for the ten-year period from 1979 to 1989 and 3060 citations for the ten-year period from 2002 to 2012.

9. See, e.g., EMILY R. LAI, METACOGNITION: A LITERATURE REVIEW 4 (2011), available at http://www.pearsonassessments.com/lai/images/tmrs/Metacognition_Literature_Review_Final.pdf; Savia A. Coutinho, *The Relationship Between Goals, Metacognition, and Academic Success*, 7 EDUCATE 39, 40 (2007); Sevgi Turan, Özcan Demirel & Iskender Sayek, *Metacognitive Awareness and Self-Regulated Learning Skills of Medical Students in Different Medical Curricula*, 31 MED. TCHR. 477, 477 (2009) (defining metacognition also as "cognition about cognition").

to what coaches and athletic psychologists try to teach athletes. They bring to the forefront the awareness of how to maximize, and consistently tap into, all the talent and genius possessed by the player, both inherently and by the process of practice. It is the awareness and then strategic adjustment that pushes someone with flashes of brilliance into a consistently brilliant thinker who can learn, absorb, and apply new material with increasing ease.

Metacognition requires having both awareness of the process and the ability to control learning and thinking.¹⁰ The two components are identified as knowledge¹¹ and regulation.¹² It appears that metacognitive knowledge and metacognitive regulation develop independently of each other.¹³ By the time students reach adulthood, most have fairly well-developed metacognitive knowledge.¹⁴ In contrast, metacognitive regulation, which involves “the monitoring of one’s cognition and includes planning activities, awareness of comprehension and task performance, and evaluation of the efficacy of monitoring processes and strategies,” is frequently underdeveloped.¹⁵

Understanding metacognition requires distinguishing it from other concepts. Metacognition is different from mindfulness, though

10. Anthony S. Niedwiecki, *Lawyers and Learning: A Metacognitive Approach to Legal Education*, 13 WIDENER L. REV. 33, 35 (2006) [hereinafter Niedwiecki, *Lawyers*].

11. For a definition of metacognitive knowledge, see LAI, *supra* note 9, at 2 (“[K]nowledge about oneself as a learner and the factors that might impact performance, knowledge about strategies, and knowledge about when and why to use strategies.”).

12. *Id.*

13. Gregory Schraw, *The Effect of Knowledge on Local and Global Monitoring*, 19 CONTEMP. EDUC. PSYCHOL. 143, 143 (1994).

14. In one study, researchers found a significant difference between graduates and undergraduates in metacognitive regulation, but not metacognitive knowledge. Andria Young & Jane D. Fry, *Metacognitive Awareness and Academic Achievement in College Students*, 8 J. SCHOL. TEACHING & LEARNING 1, 7–8 (2008). A more recent study found no significant difference between undergraduate and graduate students in business in either knowledge or regulation, but graduate students in teacher education demonstrated a measureable difference in metacognitive regulation when compared to undergraduates. Louise R. Moulding, Penée W. Stewart & Susan S. Cooper, *Metacognitive Development in Undergraduate and Graduate Students in Teacher Education and Business Administration*, 14 J. INT’L SOC. TCHR. EDUC. 49 (2010).

15. LAI, *supra* note 9, at 2. Metacognitive regulation is comprised of three separate skills: planning, monitoring, and evaluation. Planning is “the selection of appropriate strategies and the allocation of resources that affect performance”; monitoring is “awareness of comprehension and task performance”; and evaluation “refers to appraising the products and efficiency of one’s learning.” Gregory Schraw, *Promoting General Metacognitive Awareness*, 26 INSTRU. SCI. 113, 115 (1998).

they are related concepts.¹⁶ Mindfulness "generally refers to a deliberate, present-moment, non-judgmental awareness of whatever passes through the five conventional senses and the mind: emotions, thoughts, and body sensations."¹⁷ Mindfulness is awareness of in-the-moment thought, while metacognition is awareness and regulation of the process of thinking, reasoning, and learning. The concepts overlap as both mindfulness and metacognition include awareness and, to some extent, self-regulation.¹⁸ Mindfulness is often associated with awareness of the substantive content of a person's thinking and control of emotions while metacognition is thinking of the cognitive strategies and processes used while thinking.

For example, mindfulness may be demonstrated when a student is writing a journal entry or a reflection paper for a law class on what new information has been learned.¹⁹ Metacognitive work could also employ a journal, but the point would be for the student to reflect on and record *how* the student learned, rather than *what* the student learned.²⁰ Metacognition is thinking about the cognitive process or strategies used while thinking about, or trying to learn, the content and then mentally monitoring if the strategy is working well and how it can be subsequently improved.²¹

16. See, e.g., Robin C. Mörck, *Are Metacognition and Mindfulness Related Concepts?* 8–9 (2009), (unpublished dissertation, Örebro University), available at <http://nai.diva-portal.org/smash/record.jsf?pid=diva2:275993> (discussing the relatedness of the two concepts and citing studies that have regarded mindfulness as an aspect of metacognition); Scott R. Bishop et al., *Mindfulness: A Proposed Operational Definition*, 11 CLINICAL PSYCHOL.: SCI. & PRAC. 230, 233 (2004) ("[M]indfulness can be defined, in part, as the self-regulation of attention In this context, mindfulness can be considered a metacognitive skill."); Fadal Zeidan et al., *Mindfulness Meditation Improves Cognition: Evidence of Brief Mental Training*, 19 CONSCIOUSNESS & COGNITION 597, 598 (2010) (citation omitted) ("Mindfulness training cultivates moment-to-moment awareness of the self and environment. To this extent, mindfulness training heightens meta-cognitive processing.").

17. Leonard L. Riskin, *Awareness and the Legal Profession: An Introduction to the Mindful Lawyer Symposium*, 61 J. LEGAL EDUC. 634, 635 (2012). See also Leonard L. Riskin, *The Contemplative Lawyer: On the Potential Contributions of Mindfulness Meditation to Law Students, Lawyers, and Their Clients*, 7 HARV. NEGOT. L. REV. 1, 23, 48 (2002) ("In mindfulness meditation, a person seeks . . . to notice . . . whatever passes through her awareness. . . .") [hereinafter Riskin, *Contemplative*].

18. See, e.g., Riskin, *Contemplative*, *supra* note 17 ("[M]indfulness meditation can help develop . . . self-awareness [and] self-regulation.").

19. See *supra* note 16 and accompanying text.

20. Niedwiecki, *Lawyers*, *supra* note 10 (defining metacognition as the "awareness and control over one's learning and thinking").

21. *Id.*

Intelligence and metacognition are also related, but different, constructs. Intelligence is “the ability to learn or understand or to deal with new or trying situations” and “the skilled use of reason [or] the ability to apply knowledge to manipulate one’s environment or to think abstractly as measured by objective criteria.”²² In contrast, metacognition is “the ability to reflect upon, understand and control one’s learning” as a process.²³ In other words, intelligence is the ability to learn or apply knowledge in one’s life while metacognition is the ability to monitor and evaluate how well one is doing at learning and applying that knowledge and then making necessary adjustments. Cesare Cornoldi maintains metacognition affects the use of basic intelligence in many ways.²⁴ For instance, metacognition is important for the execution of higher-level thinking skills, such as analysis and synthesis, but seems to have little impact on low-level thinking tasks, such as recalling details of a case.²⁵ Metacognition also increases the ability to use a cognitive skill learned in one situation in another very different setting.²⁶

Metacognition enhances intelligence and increases the ability to learn and to perform thinking tasks—it is the skill that maximizes the utility of intelligence.²⁷ Thus, students with lesser intellectual ability who have greater metacognitive skills often demonstrate academic performance similar to students with higher intellectual ability.²⁸ For

22. MERRIAM-WEBSTER’S DICTIONARY, available at <http://www.merriam-webster.com/dictionary/intelligence> (last visited Sept. 4, 2013).

23. Gregory Schraw & Rayne Sperling Dennison, *Assessing Metacognitive Awareness*, 19 CONTEMP. EDUC. PSYCHOL. 460, 460 (1994).

24. Cesare Cornoldi, *Metacognition, Intelligence, and Academic Performance*, in HARRIET S. WATERS & WOLFGANG SCHNEIDER, METACOGNITION, STRATEGY USE AND INSTRUCTION 257, 274 (2010) (“[M]etacognition appears particularly critical because it affects the most central aspects of basic intelligence and may directly contribute to a better capacity to control working memory operations. Another important reason for paying particular attention to the educational implications of metacognition is that usual life events and traditional cultural and educational efforts do not necessarily guarantee the development of metacognition.”).

25. *Id.*

26. *Id.*

27. Robin A. Boyle, *Employing Active-Learning Techniques and Metacognition in Law School: Shifting Energy from Professor to Student*, 81 U. DET. MERCY L. REV. 1, 27 (2003) (“[W]hile teaching to diverse learning styles is helpful for students, adding metacognitive strategies maximizes student performance.”).

28. Guy Trainin & H. Lee Swanson, *Cognition, Metacognition, and Achievement of College Students with Learning Disabilities*, 28 LEARNING DISABILITY Q. 261, 262 (2005); see also H. Lee Swanson, *Influence of Metacognitive Knowledge and Aptitude on Problem Solving*,

instance, one study found that "intellectual ability uniquely accounted for 10% of variance in learning performance, metacognitive skillfulness uniquely accounted for 17% of variance in learning performance, while both predictors shared another 22% of variance in learning."²⁹ Thus, metacognitive abilities combined with intelligence are a greater predictor of learning performance than intelligence alone.³⁰

Metacognition supports and enhances learning, but is a separate skill that is not automatically developed as a result of traditional educational experiences or life events.³¹ When students are taught to be metacognitive, they demonstrate a higher level of intellectual awareness maturity³² and thus outperform peers who are not taught metacognition even when these peers have similar intelligence.³³ No matter the starting point, high levels of metacognition enable students of all intelligence levels to be more strategic in their learning. Researcher John Hattie recently completed a comprehensive analysis of education to "develop an explanatory story about the key influences in student learning."³⁴ He found that metacognitive strategies had an effect size of .69, which is equivalent to moving from the fiftieth percentile to the seventy-fifth percentile.³⁵ In other words, if a student were performing at an

82 J. EDUC. PSYCHOL. 306, 306 (1990).

29. Marcel V.J. Veenman & Marleen A. Spaans, *Relation Between Intellectual and Metacognitive Skills: Age and Task Differences*, 15 LEARNING & INDIVIDUAL DIFFERENCES 159, 161 (2005).

30. *See id.*

31. Cornoldi, *supra* note 24.

32. Nancy Joseph, *Metacognition Needed: Teaching Middle and High School Students to Develop Strategic Learning Skills*, 54 PREVENTING SCH. FAILURE: ALTERNATIVE EDUC. FOR CHILD. & YOUTH 99, 100 (2009).

33. Such findings are not limited to one content area, but occur across multiple school subjects. Annette F. Gourgey, *Metacognition in Basic Skills Instruction*, 26 INSTRU. SCI. 81, 86 (1998); Bracha Kramarski, Zemira R. Mevarech & Marsel Arami, *The Effects of Metacognitive Instruction on Solving Mathematical Authentic Tasks*, 49 EDUC. STUD. MATHEMATICS 225, 228-29 (2002); Zemira R. Mevarech & Chagit Amrany, *Immediate and Delayed Effects of Meta-Cognitive Instruction on Regulation of Cognition and Mathematics Achievement*, 3 METACOGNITION & LEARNING 147, 147 (2008); Zemira R. Mevarech & Bracha Kramarski, *Improve: A Multidimensional Method for Teaching Mathematics in Heterogeneous Classrooms*, 34 AM. EDUC. RES. J. 365, 386 (1997).

34. JOHN HATTIE, *VISIBLE LEARNING: A SYNTHESIS OF OVER 800 META-ANALYSES RELATING TO ACHIEVEMENT* 6 (2009).

35. Effect size is a measure of performance in standard deviation units, making .69 a substantial difference in performance. *Id.* at 189.

average level (fiftieth percentile), by using metacognitive strategies, he would move to the top quarter of the class.

Another way metacognition may improve performance and maximize intelligence is in helping to mitigate the effects of anxiety.³⁶ Students with high levels of metacognitive ability also display higher levels of confidence in their ability to answer problems correctly.³⁷ Higher confidence can inhibit negative anxiety-related interruptions to mental processes.³⁸

Metacognition has become an extremely important concept in education scholarship. Most educational psychology texts now devote a section to metacognition and its relationship to learning, and a second general handbook on metacognition in education has recently been published.³⁹ *Metacognition and Learning*, an international journal dedicated to the study of metacognition, published its first issue in 2006.⁴⁰ In 2008, *Educational Psychology Review* devoted a special issue to metacognition, self-regulation, and self-regulated learning, summarizing what is currently known about the topic and highlighting areas that still need investigation.⁴¹ The breadth and depth of this scholarship in educational psychology and related disciplines demonstrates the intense interest in metacognition, the progress made in understanding it, and the importance of teaching it.

II. A STUDY OF LAW STUDENTS' METACOGNITIVE SKILLS

We began this project assuming that law students, with their high academic credentials, would be relatively advanced in their metacognitive abilities. The skills needed to succeed in law school and as a lawyer—problem-solving, oral and reading comprehension, writing, etc.—are significantly enhanced by metacognition. More

36. Math students who exhibit high math anxiety but also demonstrate high levels of metacognition have similar test performances as students who have low levels of math anxiety. Angela M. Legg & Lawrence Locker Jr., *Math Performance and Its Relationship to Math Anxiety and Metacognition*, 11 N. AM. J. OF PSYCHOL. 471, 471 (2009).

37. *Id.* at 479.

38. *Id.* at 481.

39. HANDBOOK OF METACOGNITION IN EDUCATION (Douglas J. Hacker, John Dunlosky & Arthur C. Graesser eds., 2009) [hereinafter HANDBOOK].

40. *Metacognition and Learning*, SPRINGERLINK, <http://link.springer.com/journal/11409> (last visited Sept. 2, 2013).

41. 20(4) ED. PSYCHOL. REV. (2008).

importantly, high metacognitive awareness and regulation links to better academic performance.⁴² The students in our study demonstrated academic success, illustrated by the grades and test scores necessary to be admitted to the law school, and would seem likely to have excellent metacognitive skills. They do not.

Fortunately, individual students whose metacognitive skills are lower “may benefit from metacognitive training to improve their metacognition and academic performance.”⁴³ Our work sets a framework for additional empirical research on law student metacognitive skills, supports the need for more, solid scholarship in law and metacognition, and encourages the further development of programs to teach metacognitive skills in law schools.

A. Method

The purpose of this study was to investigate the metacognition of first-year law students. Can law professors assume that most students who obtain admission in law programs are already equipped with sufficient metacognitive skills? If not, teaching metacognitive skills should then be a priority.

1. Participants

Participants were 150 law students, representing approximately one-half of the first-year class beginning their first semester in fall 2010 and one-half of the class beginning in fall 2013 at the J. Reuben Clark Law School at Brigham Young University (“BYU”).⁴⁴ The two cohorts are appropriately combined given the statistical evidence of similarity and are thus analyzed as a single group.⁴⁵ The

42. ROBERT J. STERNBERG, *Metacognition, Abilities, and Developing Expertise: What Makes an Expert Student?*, in METACOGNITION IN LEARNING AND INSTRUCTION: THEORY, RESEARCH AND PRACTICE 247, 247 (Hope J. Hartman ed., 2001) (“The various researchers use a variety of theoretical frameworks, methodologies, subject-matter areas, and arguments to make a fully persuasive case for the importance of metacognition to school success. One could critique any one study or set of results, but the strength . . . is in the converging operations, all of which make the identical case.”).

43. Savia A. Coutinho, *The Relationship Between Goals, Metacognition, and Academic Success*, 7 EDUCATE, no. 1, 2007 at 40; see also Niedwiecki, *Lawyers*, *supra* note 10, at 42 (“The theory behind metacognition is that those learners who apply appropriate metacognitive strategies are better self-regulated and effective learners.”).

44. A request for participation was sent to the entire entering class, and seventy students from each class self-selected to participate.

45. The two cohorts were compared on the dependent variables in this study to ensure

BYU law students entering in 2010 had a median entrance GPA of 3.75 and a median Law School Admission Test (LSAT) score of 164 out of 180, which puts the 2010 group in the ninetieth percentile of all people who took the LSAT in the three years prior.⁴⁶ At the top quarter of admitted students in 2010, or the seventy-fifth percentile, the LSAT score was 167 and the GPA was 3.86. The BYU law students entering in 2013 had a slightly higher median GPA of 3.77, and a slightly lower median LSAT score of 161 out of 180, which puts the 2013 group in the seventy-fifth percentile of all people who took the LSAT in the three years prior. However, the seventy-fifth percentile of admitted BYU students in 2013 had a 3.88 GPA, which was higher than those in 2010, and a median LSAT score of 164 of 180. Thus, the students in the study fit easily in the top quarter of U.S. law students.

The participants in our study also generally represent law students recently admitted to schools ranked in the top thirty to the top fifty in the nation. Although efforts to rank law schools are extremely problematic given how the various factors are weighed, such rankings may be useful in putting the students in this study in context. *U.S. News and World Report* (*US News*) ranked BYU as the forty-second best U.S. law school overall in 2010,⁴⁷ and thirty-sixth in 2014.⁴⁸ *Brian Leiter's Law School Rankings*, which focuses on students' LSAT scores, GPAs, and class size, ranked BYU thirty-third in the nation in 2010,⁴⁹ but did not conduct such rankings for more recent years. *Business Insider* ranked BYU thirty-fourth in 2012.⁵⁰

that they were from the same population and could be combined into a single group without compromising the interpretation of the results. There was no significant difference in the mean scores for the dependent variables, providing evidence that the two cohorts are indeed from the same population and can be combined in further analysis. *See infra* note 65.

46. *LSAT Score Conversion*, ALPHAScore, <http://www.alphascore.com/resources/lsat-score-conversion> (last updated Mar. 4, 2011).

47. *Best Law Schools*, U.S. NEWS & WORLD REP. (May 2010), at 74, 74 (ranked as 42).

48. *Schools of Law Rankings*, U.S. News & World Rep. 2015 ed., at 84 (ranking BYU at thirty sixth), *available at* <http://grad-schools.usnews.rankingsandreviews.com/best-graduate-schools/top-law-schools/law-rankings/page+2> (last visited Nov. 5, 2014).

49. *Ranking of Top 40 Law Schools by Student (Numerical) Quality 2010*, BRIAN LEITER'S LAW SCHOOL RANKINGS (June 1, 2010), http://www.leiterrankings.com/students/2010_top40lawschools.shtml. In 2010, BYU Law School was ranked thirty-first in median LSAT score of matriculated students and fourteenth in median entrance GPA. LAW SCHOOL ADMISSION COUNCIL & AMERICAN BAR ASSOCIATION, ABA LSAC OFFICIAL GUIDE TO ABA-APPROVED LAW SCHOOLS: 2012 EDITION 56–61 (2011).

50. Jennifer Pollard, *The 50 Best Law Schools in America*, BUSINESS INSIDER (Oct. 4,

Moreover, BYU ranks high in placing students in the limited and coveted positions as Supreme Court clerks. Over the 2003–2013 terms, BYU students ranked thirteenth under “Per Capita’ Clerkship Placement” and seventeenth in “Total Clerkship Placement.”⁵¹ The *Princeton Review Most Competitive Students* list moved BYU students up from third in 2012 to second in 2013 and 2014.⁵²

This is the first empirical study of metacognition and law students ever published. Although more research using larger sample sizes and longitudinal studies would be useful, we can begin to understand the implications for legal education with these results. Because we understood that, independently, the data derived from the study would not hold much meaning for readers outside of education disciplines, we looked for other studies dealing with highly qualified postgraduate students for a basis of comparison. Most of the extant literature focuses on secondary and college students. Although medical schools have recently become interested in metacognition and some studies using the same survey instrument are underway,⁵³ few published studies exist at this level.

We compared the law student data with results using the same instrument on seventy-three volunteer master’s degree students in business administration and fifty-three volunteer master’s degree students in education at Weber State University, a nearby regional university. We assumed both the comparison groups would score lower on metacognition than the law students because of the high academic scores of the law students. The Weber students have lower academic qualifications based on objective measures.⁵⁴

2012, 10:17 AM), <http://www.businessinsider.com/the-50-best-law-schools-in-america-2012-9?op=1>.

51. *Supreme Court Clerkship Placement, 2003 Through 2013 Terms*, BRIAN LEITER’S LAW SCHOOL RANKINGS (Sept. 10, 2013), http://www.leiterrankings.com/new/2013_SCCLerkshipPlacement.shtml.

52. *The Princeton Review: Most Competitive Students*, <http://www.princetonreview.com/SchoolList.aspx?id=729> (last visited Oct. 15, 2014).

53. A surgical educator, Jack Contessa, at Yale New Haven Hospital has been conducting research on surgical residents using the MAI, the same instrument we used in our study. The data has been collected but not yet analyzed. Contessa contacted one of the authors of this study by email to make sure that he used the same descriptors for the MAI Likert scale in his study as we did in ours. Emails from Jack Contessa, Medical Educator at Yale New Haven Hospital, to Penée Stewart, Professor of Teacher Education, Weber State University, (Nov. 12, 2012, 1:25 PM MST & Sept. 3, 2013, 4:42 AM MST) (on file with authors).

54. The Master of Business Administration students had an average entrance GPA of 3.4 and an average Graduate Management Admission Test (GMAT) score of 560 out of 800,

The student populations were similar in race and cultural traits, but two differences may be interesting. The mean age of students in the business administration and education programs was greater than the mean age of the law students, and the spread in age was wider. The law students were, on average, younger and closer in age. We include age and gender information in Table 1 in the Appendix, although previous studies have shown that metacognition is not related to gender.⁵⁵ The preponderance of males in the business administration program and females in teacher education made it unreasonable to conduct analysis by gender without the influence of program.

2. Instrumentation

The survey instrument used in this study was the Metacognitive Awareness Inventory (MAI). The MAI is a self-report questionnaire developed by Gregory Schraw and R.S. Dennison in 1994 that is commonly used in metacognition studies of adults.⁵⁶ Earlier studies have shown that the MAI is reliable.⁵⁷ The MAI consists of fifty-two

which is the fifty-second percentile. Email from Peggy J. Saunders, Director, Master of Education Program, Associate Professor, Weber State University, to Penée Stewart, Professor of Teacher Education, Weber State University, (Nov. 10, 2014, 5:27 PM MST) (on file with authors). The Weber Masters of Education students had an average entrance GPA of 3.82. Students applying to the program with a GPA between 3.0 and 3.24 must submit Miller's Analogies Test (MAT) scores with a minimum of 400 or Graduate Record Examination (GRE) scores with minimum 480 each on the Verbal and Quantitative Reasoning, and 5.0 on the Analytical Writing portion. Because applicants who have higher than a 3.25 GPA are not required to submit MAT or GRE scores for the masters of education program, we do not have average GRE scores for this program. According to *US News*, Weber is sixty-eighth among the regional universities in the West. *Weber State University*, U.S. NEWS, <http://colleges.usnews.rankingsandreviews.com/best-colleges/weber-state-university-3680/rankings> (last visited Oct. 15, 2014).

55. See, e.g., Elaine M. Justice & Teresa M. Dornan, *Metacognitive Differences Between Traditional-Age and Nontraditional-Age College Students*, 51 ADULT EDUC. Q. 236, 246 (2001).

56. Schraw & Dennison, *supra* note 23, at 460–75. While most metacognitive instruments have been designed for use with children and adolescents, the MAI was designed specifically for use with adults. This self-report instrument continues to be used in studies of adult metacognition. See, e.g., Mörrck, *supra* note 16, at 11; Rayne A. Sperling et al., *Metacognition and Self-Regulated Learning Constructs*, 10 EDUC. RES. & EVALUATION 117, 123–35 (2004); Turan et al., *supra* note 9, at 477–78; Young & Fry, *supra* note 14, at 1–10.

57. Schraw and Dennison reported that Cronbach's α coefficient for the entire instrument was 0.95 in their first study, Schraw & Dennison, *supra* note 23, at 464, and 0.93 in their second study. Schraw & Dennison, *supra* note 23, at 468. Cronbach's α for the two subscales were 0.91 in their first, and 0.88 in their second, study. *Id.* Sperling, et al. also found

statements to which participants respond by marking on a five-point Likert scale, with zero indicating "never" and five indicating "always."⁵⁸ The MAI statements represent the two components of metacognition: knowledge and regulation.⁵⁹ Within the knowledge component are statements of declarative knowledge (knowledge about self and strategies), procedural knowledge (knowledge about strategy use), and conditional knowledge (knowledge about when and why to use strategies).⁶⁰ The regulation component covers planning (goal setting), information management (organizing), monitoring (assessment of learning and strategy), debugging (strategies to correct errors), and evaluation (analysis of performance and strategy effectiveness).⁶¹ The survey was administered using standard procedures.⁶²

that the instrument was reliable, and was related with both the Learning Strategies Survey (LSS) and the Motivated Strategies for Learning Questionnaire (MSLQ). Sperling et al., *supra* note 56. Together these findings indicate that the MAI is reliable and valid.

58. Instead of using the four-point scale that Schraw and Dennison originally employed, we used a five-point Likert scale with alternatives: (0) never, (1) seldom, (2) sometimes, (3) often, and (4) always. Other than that modification, the instrument was presented in the same way as in Schraw and Dennison's original study. In a personal email, Schraw reported that he now recommends using the five-point scale. Email from Gregory Schraw, Dir., UNLV Ctr. for Research, Evaluation, & Assessment, to Penée Stewart, Professor of Teacher Education, Weber State University, (Jan. 14, 2013, 12:38 PM MST) (on file with author).

59. Knowledge of cognition and regulation of cognition are further separated into theoretical subscales. The subscales for knowledge about cognition are declarative knowledge, procedural knowledge, and conditional knowledge. The subscales for regulation of cognition consist of planning, information management, monitoring, debugging, and evaluation. However, Schraw and Dennison obtained support only for a two-component model of metacognition. Schraw & Dennison, *supra* note 23, at 470. Thus, the MAI should be regarded as a means to measure knowledge about cognition and regulation of cognition, not as a number of separate subcomponents of metacognition.

60. Sample items on knowledge of cognition are, "I am a good judge of how well I understand something," and "I understand my intellectual strengths and weaknesses." Schraw & Dennison, *supra* note 23, at 473 Q5, Q32.

61. Sample items on regulation of cognition are, "I think about what I really need to learn before I begin a task," and "I ask myself if I have considered all options when solving a problem." Schraw & Denison *supra* note 23, at 473 Q6, Q 11.

62. Researchers administered the survey instrument during class sessions in the three graduate programs. The survey was administered in paper form for business and education students and online for law students, but this distinction has no substantive content. Cooperation from the course instructors facilitated the administration and encouraged participation. All students were informed that the survey was voluntary, and some chose not to participate.

For each respondent, three scores were generated and used in data analysis: scores for metacognitive knowledge, metacognitive regulation, and total MAI. Data from the survey instrument were analyzed using group membership as the independent variable and the three

B. Results

After a brief explanation of how the data were analyzed, we will explain our results and conclusions. We report on three scales: MAI knowledge, MAI regulation, and combined. Table 2 in the Appendix presents the descriptive statistics for each group.

In general, education students scored higher on metacognitive knowledge than the business and law students, but not significantly.⁶³ Education students likewise scored higher in metacognitive regulation, and law students scored the lowest,⁶⁴ with the differences being statistically significant as shown on Table 3 in the Appendix.⁶⁵ To isolate the differences between the groups, a Tamhane (T2) post hoc test was performed (see Table 4 in the Appendix). This revealed that the significant difference in regulation and total scores was between the graduate students in education and students in the other two programs. Education graduate students' mean scores were significantly higher than graduate business and law student mean scores, even accounting for differences in age.

C. Analysis and Conclusions

The results of this study may seem surprising initially. Although all of the participants in the study were successful undergraduate students, we wondered whether the BYU law students would demonstrate greater metacognitive skills given their academic credentials, and the relevance of metacognitive skills to the nature of their study and the profession of law. All three groups had similar metacognitive knowledge, but the BYU law students and Weber business students had significantly lower metacognitive regulation

MAI scores (knowledge, regulation, and total score) as dependent variables in a one-way analysis of co-variance (ANCOVA). Alpha was set at 0.05 for all statistical tests.

63. Research suggests that by the time learners become adults, metacognitive knowledge is fairly well developed, while metacognitive regulation may be underdeveloped. It appears that metacognitive knowledge and metacognitive regulation develop independently of each other. See Schraw, *supra* note 13, at 152.

64. The two cohort groups of law students were compared to ensure that they were of the same population and could be combined for analysis. There was no significant difference for metacognitive knowledge [$F(1, 148)=.045, p=0.833$], metacognitive regulation [$F(1, 148)=.923, p=0.338$], or metacognitive total [$F(1, 148)=.402, p=0.527$].

65. An ANCOVA was performed with group membership as the independent variable, scores as the dependent variable, and age as the covariate. Results indicate that there was no significant difference in scores for metacognitive knowledge.

scores than the Weber education graduate students.

When statistically significant mean score differences are found, three possible explanations arise. First, the differences may be a result of sampling error (chance). This is an unlikely explanation in this study given the low probability values of the Analysis of Co-variance (ANCOVA).

Second, there may be some threats to the internal validity of the study based on study design and procedures. There were differences in the characteristics of each program's sample that may influence the results. For example, the law students were just beginning their first year of law school, while the graduate business and education students were at varying stages of program completion. In addition, the law students were younger and more homogeneous in age than the other participants. This may play a part in explaining differences in metacognitive regulation. The results of the ANCOVA showed significant differences between education students and the other participants when age was a covariate. Experience rather than age is the more likely explanation for the differences.

The third and most likely explanation is that the data accurately reflect the true differences in performance between graduate education students and law and business students. In the next subpart we explore what may account for the lower performance of law students.

D. Possible Explanations for Low Law Student Performance

At first blush, it seems strange that law students with high entrance scores do not demonstrate metacognitive skills that are as well developed as graduate education students at a regional university. In this subpart we explore the likely explanations and what they mean for the development of legal education. The first clue may lie in the fact that the education students have honed the ability to teach new and struggling thinkers to think. Teachers develop metacognitive skills in the process of figuring out how to transfer the processes in their own heads to others. Secondly, the natural intelligence and talent of law students may have been enough to perform well in school so far without the boost generated by metacognitive skills. This assumption is supported by research on the

metacognitive skills of medical students, a population who also have done very well through undergraduate work.⁶⁶

The first explanation may lie in the nature of education as a discipline and the fact that the master's degree education students in the comparative study have not only studied learning theory as undergraduates but also have had experience as teachers. Research suggests a relationship between metacognition and teaching experience.⁶⁷ Teachers are trained to focus on the underlying core of learning and then design instruction to help their students do more capable thinking about the information presented. In this process, teachers naturally become aware of their own thinking. A prevalent, research-based instructional strategy in education is for teachers to use "think alouds" or cognitive modeling.⁶⁸ In this process, the teacher is trained to become aware of the thinking used to complete a specific task and then make the thinking explicit to students by describing it as they perform the task. This may explain in part why education master's degree students' metacognitive regulation scores were significantly higher than the regulation scores of business students or law students. Although some of the law or business students in the study may have been trained as teachers, this would most likely be a relatively small percentage.

In addition, all of the education students and most of the business students had work experience in their field of current study. The work experience of these two groups may be a factor in distinguishing their performance from that of law students. In addition to age, prior related work experience may facilitate developing metacognitive skills. Some of the law students worked following their undergraduate degree and before applying to law school, but most did not. Future studies need to run comparison groups based on prior work experience, age, undergraduate major, and other more specific demographics.

66. See *supra* note 54 and *infra* notes 73–76.

67. See Penée W. Stewart, Susan S. Cooper & Louise R. Moulding, *Metacognitive Development in Professional Educators*, 21 RESEARCHER 32 (2007).

68. See Cathy Collins Block & Susan E. Israel, *The ABCs of Performing Highly Effective Think-Alouds*, 58 THE READING TCHR. 154, 154 (2004); Dale H. Schunk, *Self-Efficacy for Reading and Writing: Influence of Modeling, Goal Setting, and Self-Evaluation*, 19 READING & WRITING Q.: OVERCOMING LEARNING DIFFICULTIES 159, 162–69 (2003); Jeffrey D. Wilhelm, *Think-Alouds Boost Reading Comprehension*, SCHOLASTIC INSTRUCTOR, Nov.–Dec. 2001, at 26.

Another factor could be that many of the law students in this study may be sufficiently intellectually talented that undergraduate academic success came without truly honing their learning processes. Like athletes who have relied on their natural abilities through high school and college, they eventually come to the point where the rubber hits the road and they must learn to manage their talent to meet new competitive demands. Although the law students' undergraduate grades were generally higher than the business and education students, it is easily possible that the more important factors were intelligence, time devoted to study, and motivation. Undergraduate students with well-developed metacognitive skills would perform better than their other abilities would predict; students with higher levels of talent, time, and motivation would score even better than they now do with well-developed metacognitive skills.

Unfortunately, law school applicants who have received high undergraduate grades based on their diligence and raw intelligence may not have enough to rise to the top in law school, let alone in practice. Law students face competition unlike in their prior endeavors, and thinking like a lawyer requires something more. Highly qualified students have the natural talent, but their capabilities may not be realized without focused instructional intervention.⁶⁹ A student with less talent but metacognitive skills could out-perform a student with more talent but no metacognitive skills; a student with natural talent and metacognition would be more capable of performing at the highest level.

In a study of 179 undergraduate students, Savia Coutinho found a weak correlation between metacognition and GPA, meaning it is difficult to predict whether a student will have a high or low GPA *solely* based on their level of metacognition.⁷⁰ Conversely, students who have both high natural intelligence ability and well-honed metacognitive skills performed much better than those students who have only high intelligence ability or only developed metacognitive skills.⁷¹ Metacognition enhances the academic performance for whatever ability level the student exhibits. Many of the law students

69. MARK QUIRK, INTUITION AND METACOGNITION IN MEDICAL EDUCATION: KEYS TO DEVELOPING EXPERTISE 132 (2006).

70. Coutinho, *supra* note 9, at 43. The MAI was used to measure the level of metacognition in this study.

71. *Id.*

in this study may have enjoyed sufficient academic performance as undergraduates without having to engage in metacognition regulation. The thinking demands of law and the highly competitive legal market will require focusing on a skill they have not honed in their prior education.

Those who can readily adapt and figure out how to crank up the volume move ahead. Nancy Millich observed:

Most law students have succeeded in their undergraduate careers because they have mastered traditional learning methods. They have developed the skills of memorization, note-taking, and review that are recommended by many texts dealing with how to succeed in law school. However, they have failed to understand that law school requires an additional layer of learning . . . [and] that “traditional study skills materials generally do not teach students to monitor and then change their learning and studying activities as the situation demands.”⁷²

The demands of legal education, where professors often push students out of their comfort zone, put more pressure on students’ natural learning styles to prepare students for the new thinking hurdles that will bombard them in the profession.

Although no other research explores the metacognition of law students, the work with medical students, although limited, sheds some light on both of the possible explanations we discussed above. To begin with, medical students are more similar to law students in terms of innate ability and past academic achievement. Medical students are also not likely to have much in terms of training to understand their own or others’ thinking in the way that teachers do.

Sevgi Turan and his co-researchers used the same instrument used in our study, the MAI, to examine the metacognition of 862 medical students from four different medical schools, each of which used different curricular models.⁷³ The results showed that many

72. Nancy Millich, *Building Blocks of Analysis: Using Simple “Sesame Street Skills” and Sophisticated Educational Learning Theories in Teaching a Seminar in Legal Analysis and Writing*, 34 SANTA CLARA L. REV. 1127, 1145 (1994) (footnotes omitted) (quoting Paul T. Wangerin, *Learning Strategies for Law Students*, 52 ALB. L. REV. 471, 477 (1988) (citing Ann L. Brown & Annemarie Sullivan Palincsar, *Inducing Strategic Learning from Texts by Means of Informed, Self-Control Training*, 2 TOPICS IN LEARNING & LEARNING DISABILITIES 1, 3-4 (1982))).

73. Turan et al., *supra* note 9, at 478.

medical students had low levels of metacognitive skills notwithstanding their academic achievement.⁷⁴ In addition, Turan's study showed links between higher metacognition regulation scores and the kind of reflective experience-based learning teachers have. The medical students from the one school using a problem-based curriculum—where students participated in various clinical settings and then discussed and reflected on what the experience taught them—had significantly higher MAI scores than the students attending the other schools.⁷⁵ This finding is very significant, and studies of this sort need to be conducted with law students comparing various teaching approaches, especially the use of hands-on clinics.

It may also be that the prior work experience of education and business master's degree students replicated this clinic-type approach, and law students who had not worked between college and law school were deprived of this advantage. Not all work experience would do so. It would need to be reflective and closely mentored.

III. THE NEED FOR METACOGNITIVE SKILLS IN LAW

Although more work needs to be done with larger samples, including more information about the subjects' backgrounds and characteristics, our research demonstrates that law students, notwithstanding their prior academic achievements, may not have well-developed metacognitive regulation skills. The next questions to address are, first, whether metacognitive skills are truly needed in the law, and, second, whether such skills can be taught to those law students who are not yet proficient regulators of their thinking processes and strategies.

As with law students, no studies have been published showing the level of metacognitive skills in practicing lawyers or comparing those skills between successful and less successful practitioners. The following section describes what education researchers have shown about metacognitive skills and then relates these skills to those needed in the practice of law. Just as with students, some lawyers may be limping along on their I.Q. or hard work. What is clear from this discussion, however, is that lawyers are particularly engaged in

74. *Id.* at 481.

75. *Id.*

the kind of work that is enhanced by high metacognitive skills. The educational psychology research discussed above supports the proposition that any student, any thinker at any level, can maximize his or her innate intellectual talent by developing metacognitive skills.⁷⁶ In addition, an examination of the particular kinds of thinking demands that recur in law suggests that even the most intellectually qualified will profit from acute metacognitive regulation.

To begin with, lawyers must continually improve in rhetoric, the manipulation of language, and the comprehension of long and dense texts. In this endeavor, comprehension, writing, attention, and memory are obviously invaluable. Metacognition enhances these abilities. The experts in educational science link metacognition especially with “oral communication of information, oral persuasion, oral comprehension, reading comprehension, writing, . . . attention, memory, [and] problem solving”⁷⁷

In addition to the ability to think, lawyers rely on other skills that are enhanced by a well-developed metacognitive awareness and regulation.⁷⁸ Perhaps the most important is the ability to learn consistently how to think better when encountering each new legal problem. In addition, a lawyer needs excellent ability in oral communication and persuasion, reading and writing, fact gathering, and stress management. All of these are enhanced by high metacognition. Law is a profession centered on resolving complex disputes through competent advocacy. We will discuss each of these in the context of metacognition.

A. Lifelong Learning

Legal education requires some memorization, but the law is ambiguous, changing, and mutated by facts. Law professors have struggled in trying to explain that they are not “hiding the ball,” but instead that there is no ball. Moreover, law schools have long recognized that they cannot teach students in three years the doctrine, let alone the theory, for all the areas of law in which they

76. *See supra* Part I.

77. Flavell, *supra* note 7, at 907.

78. *Id.* at 906 (“[M]etacognition plays an important role in oral communication of information, oral persuasion, oral comprehension, reading comprehension, writing, language acquisition, attention, memory, problem solving, social cognition, and, various types of self-control and self-instruction.”).

may be asked to practice. And the doctrine in a particular area may change even before the student graduates by a legislative enactment or a dramatic change in policy by the Supreme Court. Thus, law schools must aim to teach students to "think like a lawyer," so they leave armed to continually learn new law, new applications of the law, and creative new ways to make and use law. The thinking skills required to be a lawyer are articulated in a list compiled by Nancy Shultz:

[L]awyers must be able to (1) analyze and synthesize legal principles; organize and present a coherent and persuasive line of reasoning in speech and writing; interview prospective clients, examine witnesses, and draft pleadings or interrogatories; listen, exercise judgment, and engage in moral reasoning; and develop knowledge of self and of the premises of the legal and the social order; (2) think independently, master complex bodies of data, organize the data into legal categories, and present the resulting intellectual product in a persuasive manner that is designed to achieve a particular goal; (3) critically analyze the utility, effectiveness, and social implications of legal doctrine and procedure; integrate nonlegal approaches into the legal problem-solving process; and synthesize and build original legal theories, frameworks, and systems; (4) figure out the different goals that a particular client might choose to pursue, sort out the relationships among different possible goals, devise possible strategies for realizing a particular goal, try to separate compatible from incompatible goals, and prioritize among different possible goals.⁷⁹

This list is daunting, but surprisingly true to what lawyers must do throughout their careers. Not included in this list is conquering every body of law raised by each client's facts as applied in every jurisdiction in which the client does business or incurs liability. Each of these activities is a demanding intellectual endeavor. Law school cannot begin to give a student a formula that can solve all of these puzzles, let alone address the substantive law. Notwithstanding renewed enthusiasm in making skills courses available to students, law schools cannot hope even to teach students all the mental skills they need to excel. Therefore, today's first-year student must

79. Nancy L. Schultz, *How Do Lawyers Really Think?*, 42 J. LEGAL EDUC. 57, 60 (1992) (citations omitted).

become a student over and over again to dig in and climb steep learning curves. Law is a thirty- or forty-year course of study. Professor Shultz concluded, “[p]erhaps the single most useful cognitive skill for a good lawyer is the ability to learn from experience.”⁸⁰

Learning how to learn each time faster, better, and with less stress is invaluable. Metacognition generates from every learning experience the awareness of how thinking happens and then, more importantly, the ability to strategize and control thinking in the next challenge. Thus, learning how to think better in the future is a metacognitive skill of infinite value to a lawyer. Teaching students to be these kinds of lifelong learners should be one of the “biggest components of legal education,”⁸¹ an idea taught by Anthony Niedwiecki in his work on teaching metacognition in legal research courses, outlined as follows:

The discussion about how to teach law students often omits one of the biggest components of legal education: the best way to train students to be lifelong learners. Because law schools cannot teach students every area of the law or every skill they will use as lawyers, the focus should be on teaching them how to transfer their learning in law school to the novel situations they will face in the legal profession. . . . *Lawyers need to learn new material on a daily basis, whether that material is a legal concept, a procedural rule, or a completely new discipline that is the underlying substance of a legal problem. Those who are able to learn efficiently and thoroughly are able to handle the constant learning required of lawyers, and learning theorists describe these individuals as expert learners.*⁸²

The abilities that mark a lifelong “expert learner” strongly rely on metacognitive skills.⁸³

80. *Id.*

81. Anthony Niedwiecki, *Teaching for Lifelong Learning: Improving the Metacognitive Skills of Law Students Through More Effective Formative Assessment Techniques*, 40 CAP. U. L. REV. 149, 153 (2012) [hereinafter Niedwiecki, *Teaching*].

82. *Id.* at 153–54 (emphasis added) (citation omitted).

83. *Id.* at 155 (citing Michael Hunter Schwartz, *Teaching Law Students to be Self-Regulated Learners*, 2003 MICH. ST. DCL L. REV. 447, 480 (2003)). Niedwiecki relies on the definition of “expert learner” offered by Peggy A. Ertmer & Timothy J. Newby, *The Expert Learner: Strategic, Self-Regulated, and Reflective*, 24 INSTRUCTIONAL SCI. 1, 1 (1996). They explain, among other things, “that an expert learner is a strategic, self-regulated, and reflective

B. Oral Communication

Excellent oral comprehension and oral persuasion are perhaps more important in lawyering than in any other field. Litigators must explain the facts and legal arguments for a judge or a jury and respond quickly to the arguments and witnesses of the opposing parties. This requires the litigator to use metacognitive skills to quickly comprehend what he or she hears, process it, and find words to explain a response. Outside of a courtroom, a good lawyer must effectively explain the law and its application to a lay client while guiding the client toward finding solutions. In addition, much of any lawyer's business consists of negotiating with opposing parties and their counsel.

C. Hermeneutics and Drafting

In addition to oral communication, a lawyer must work with complex texts. Metacognition enhances the ability to quickly comprehend, process, and apply language in texts.⁸⁴ Lawyers write motions, court briefs, contracts, settlement agreements, demand letters, and a myriad of other documents. These must be precisely and persuasively worded. Even before entering legal practice, lawyers must complete reading assignments in law school that are extraordinarily long and demanding. While reading, a reader uses metacognition to monitor the complexity of the text, isolate difficult passages for rereading, and stop to make connections between different points within a text. The law student who can do this faster and better can overtake other students who may have higher intelligence.

learner who uses different types of knowledge to bring about successful learning," Niedwiecki, *Teaching*, *supra* note 81, at 154 n.30 (citing Ertmer & Newby, *supra*). Expert learners are also "self-directed and goal-oriented" and use knowledge in conjunction with effective cognitive strategies to enhance their opportunities to learn a wide array of information. Ertmer & Newby, *supra*.

84. See, e.g., Margaret G. McKeown & Isabel L. Beck, *The Role of Metacognition in Understanding and Supporting Reading Comprehension*, in HANDBOOK, *supra* note 39, at 7; Keith W. Thiede et al., *Metacognitive Monitoring During and After Reading*, in HANDBOOK, *supra* note 39, at 85. Both of these articles report on a wide variety of studies involving reading comprehension and metacognitive skills. See also Peter Dewitz, *Legal Education: A Problem of Learning from Text*, 23 N.Y.U. REV. L. & SOC. CHANGE 225, 229 (1997) ("This twofold nature of self-regulation, monitoring of comprehension and repair of comprehension breakdown, is called metacognition. Metacognition, or thinking about thinking, is critical to a reader's success especially when reading challenging text.").

These tasks continue after school: practicing lawyers do not simply read—they must detect and prioritize details. In practice, when reading documents from opposing counsel, interpreting statutes, and conducting research through prior judicial opinions and other sources of law, a lawyer must be able to quickly identify the kinds of small and subtle distinctions in facts and analysis that frequently wreak enormous consequences in legal results.

D. Factual Analysis

Metacognition may allow a lawyer to more efficiently gather accurate facts and better evaluate clients' options.⁸⁵ With each new problem, lawyers with high metacognitive skills improve their ability to strategize—to quickly identify what they already know, fill gaps in that knowledge, and predict how much time it will take to solve a problem.⁸⁶ The use of metacognition in client interviews is described by John DiPippa and Martha Peters:

In interviewing clients, lawyers must stay alert to their own mental patterns and ways they might distort clients' information through their own biases and expectations. By accessing the metacognitive process one can monitor one's own tendencies to prematurely diagnose clients' issues, to come to conclusions about facts or legal options because they start to fall into a familiar pattern, and to stay alert to the ways one's values may interpret a client's story.⁸⁷

The ability to monitor and control thinking helps avoid distorted conclusions and mistakes in understanding and judgment. Having a more accurate view of the facts is a giant leap toward forming a persuasive argument.

85. John M. A. DiPippa & Martha M. Peters, *The Lawyering Process: An Example of Metacognition at Its Best*, 10 CLINICAL L. REV. 311, 322 (2003).

86. Niedwiecki, *Teaching*, *supra* note 81, at 158.

87. DiPippa & Peters, *supra* note 85.

E. Anxiety Management

Metacognition reduces stress and arms lawyers with greater confidence in their ability to tackle each new problem that enters the door. In Angela Legg and Lawrence Locker, Jr.'s study of math performance, students with higher metacognitive skills demonstrated fewer negative, anxiety-related mental processes.⁸⁸ Although further research needs to be done to examine the relationship between these variables, Legg and Locker postulate that students with higher metacognitive skills may focus more of their mental energy on using productive "metacognitive processes to learn and think, rather than [focusing on] anxiety related thoughts."⁸⁹ This one benefit of metacognition training alone is sufficient to justify efforts to include it in legal education.

Many students experience severe anxiety in law school. Practicing lawyers suffer more "alcoholism, divorce, suicide, and poor physical health" than the general public.⁹⁰ While the exact statistics vary, some studies have found that attorneys are two to six times more likely than the general population to be depressed.⁹¹ The exact causes of these phenomena are unknown and may include a number of features of the profession and the kind of personality drawn to the profession.⁹² Nonetheless, in addition to whatever other causes, the

88. See Legg & Locker, *supra* note 36.

89. *Id.* at 480; see also Niedwiecki, *Teaching*, *supra* note 81, at 158–59 ("Those with strong metacognitive skills are better at these steps in the learning process and better at determining the appropriate legal action.").

90. Rebecca LeAnne Bowman, When a Law Degree Is Not Enough: The Necessity of a Second Professional Degree for Lawyers, 14 (July 2010) (unpublished Ph.D. thesis, University of Iowa), available at <http://ir.uiowa.edu/cgi/viewcontent.cgi?article=1831&context=etd> (citing Patrick J. Schiltz, *On Being a Happy, Healthy and Ethical Member of an Unhappy, Unhealthy, and Unethical Profession*, 52 VAND. L. REV. 871, 874–80 (1999)); see also JEAN STEFANCIC & RICHARD DELGADO, HOW LAWYERS LOSE THEIR WAY: A PROFESSION FAILS ITS CREATIVE MINDS 53–57 (2005); Connie J.A. Beck et al., *Lawyer Distress: Alcohol-Related Problems and Other Psychological Concerns Among a Sample of Practicing Lawyers*, 10 J.L. & HEALTH 1, 45 (1995–1996).

91. Rebecca Stonawski, *In Addition to the Law Degree*, 21 EDUC. & L.J. 267, 274 (2012) (citing Mark Hansen, *The Less Final Option*, 95 A.B.A. J. 35, 35 (2009)).

92. See Stonawski, *id.*, at 273, 282; see also Susan Daicoff, *Lawyer, Know Thyself: A Review of Empirical Research on Attorney Attributes Bearing on Professionalism*, 46 AM. U. L. REV. 1337, 1416–21 (1997). According to information provided to CNN by the Centers for Disease Control, "[l]awyers ranked fourth when the proportion of suicides in that profession is compared to suicides in all other occupations in the study population." Rosa Flores & Rose Marie Arce, *Why Are Lawyers Killing Themselves?* CNN U.S. (Jan. 20, 2014, 2:42 PM), <http://www.cnn.com/2014/01/19/us/lawyer-suicides/>.

role of stress and anxiety cannot be overestimated. As one expert explained, if stress is chronic, “repeated challenges may demand repeated bursts of vigilance. At some point, this vigilance may become overgeneralized, leading an individual to conclude that he must always be on guard—even in the absence of the stress. And thus the realm of anxiety is entered.”⁹³ One attorney described the “realm of anxiety” as feeling like “a coffee pot” that was continually “brewing in his stomach” and that each file on the desk was a “ticking time bomb about to go off.”⁹⁴ This attorney admitted that as the anxiety grew, he became dysfunctional.⁹⁵ Lawyers who know how to organize and regulate their thinking can move forward with confidence when facing not only complex legal problems, but also the debilitating dysfunction of depression.

In short, the practice of law is particularly likely to include tasks that are enhanced by metacognitive skills. The best lawyers continue to be challenged by the work. They should be able to improve with each new case or transaction as they thoughtfully consider how they solved prior problems and how they can solve others in the future better and more efficiently. Lawyers’ trade and stock is words. Metacognitive skills improve oral communication, written communication, the deciphering of complex texts, and the ability to see the nuanced factual connections that help a lawyer build a case from a set of facts. Metacognitive thinkers develop patterns for approaching and unraveling thinking problems, which gives them confidence in new situations and helps relieve stress. These skills are particularly pertinent to the practice of law.

IV. METACOGNITION IN LEGAL SCHOLARSHIP AND ATTEMPTS TO TEACH IT

Given its importance, metacognition has garnered surprisingly limited specific attention in legal scholarship to date, and what does exist sometimes tends to confuse or blur the concept of metacognition. Although both the *MacCrate* and *Carnegie Reports*

93. Robert Sapolsky, *Taming Stress: An Emerging Understanding of the Brain’s Stress Pathways Points Toward Treatments for Anxiety and Depression Beyond Valium and Prozac*, 289 SCI. AM. 86, 88 (2003).

94. Daniel T. Lukasik, *How Stress and Anxiety Become Depression*, LAWYERS WITH DEPRESSION (May 22, 2011), <http://www.lawyerswithdepression.com/articles/how-stress-and-anxiety-become-depression-2/>.

95. *Id.*

raise issues embodied by metacognition,⁹⁶ the only direct reference is in the *Carnegie Report* and is in passing:

[P]rofessional schools cannot directly teach students to be competent in any and all situations; rather, the essential goal of professional schools must be to form practitioners who are aware of what it takes to become competent in their chosen domain and to equip them with the reflective capacity and motivation to pursue genuine expertise. They must become 'metacognitive' about their own learning, to use the psychologists' term.⁹⁷

Moreover, metacognition training is directly included in the practices of only a few law schools.⁹⁸ Those who have addressed metacognition in the context of legal education and lawyering, despite the differences in approach and proposed solutions, support the broad idea that metacognitive skills are critical for law students,⁹⁹ as well as for lawyers.¹⁰⁰ In this section, we briefly review the extent of extant legal scholarship on metacognition and clarify some confusion and misuse of the term.

96. Schwartz, *supra* note 83, at 468 ("Although the *MacCrate Report*, perhaps the most influential work addressing law school teaching ever written, nowhere uses the terms 'self-regulated learning' or 'expert learning,' it appears to have these concepts in mind in its reference to one of the skills new lawyers should possess, 'organization and management of legal work.'") (citing MACCRATE REPORT, *supra* note 3, at 140); see also Niedwiecki, *Teaching*, *supra* note 81, at 165–66 (discussing the *Carnegie Report* and other critiques of legal education in the context of the need for teaching metacognition).

97. CARNEGIE REPORT, *supra* note 3, at 173.

98. Boyle, *supra* note 27, at 13 ("Metacognition has received a modicum of attention in law teaching. Paul T. Wangerin advocated metacognition well over a decade ago, and a sprinkling of law professors have taken up the call.").

99. See, e.g., Tonya Kowalski, *True North: Navigating for the Transfer of Learning in Legal Education*, 34 SEATTLE U. L. REV. 51, 55 (2010) [hereinafter Kowalski, *True North*] (arguing that "metacognitive strategies . . . could help students bridge analytical skills from first-year legal writing to writing for clinic; doctrinal knowledge from classroom discussion in Constitutional Law to the final examination; and doctrinal knowledge from first-year Torts and Contracts to a tortious interference suit encountered five years later in practice").

100. See, e.g., Beryl Blaustone & Carmen Huertas-Noble, *Lawyering at the Intersection of Mediation and Community Economic Development: Interweaving Inclusive Legal Problem Solving Skills in the Training of Effective Lawyers*, 34 WASH. U. J.L. & POL'Y 157, 160 (2010) ("At the intersection of empowerment-driven mediation practice and [community economic development] lawyering is the central use of metacognitive self-awareness, robust information gathering, active listening, language reframing, facilitation, problem-solving, and consensus-building skills."); Jane Goodman-Delahunty et al., *Insightful or Wishful: Lawyers' Ability to Predict Case Outcomes*, 16 PSYCHOL. PUB. POL'Y & L. 133, 153 (2010) ("Several avenues to help lawyers better calibrate their metacognitive judgments are advised.").

In 1988, Paul T. Wangerin was the first to advocate teaching metacognitive skills to law students.¹⁰¹ Building on Wangerin's suggestions, Nancy Millich provided concrete examples of fostering metacognition during legal writing courses.¹⁰² For the next decade, a handful of other scholars addressed Wangerin's suggestion and the term "metacognition" was occasionally referenced in articles focused on other topics.¹⁰³

Although not focusing exclusively on metacognition, several articles in this era included some relevant discussion of self-regulated learning that typically included some sub-skills that are considered components of metacognition.¹⁰⁴ While metacognition, self-regulation, and self-regulated learning are technically different skills, many education scholars recognize that the meaning of these three terms "have been inextricably intertwined within the educational literature, either intentionally or unintentionally."¹⁰⁵ This problem is amplified in legal scholarship.

The role of metacognition in developing the skills of lawyering has shown up more regularly since 2001, when Michael Schwartz included metacognition as a part of his call for learning theory and instructional design to be part of reform in legal education.¹⁰⁶ The subsequent work, unfortunately, was plagued with confusion as legal

101. Wangerin, *supra* note 72, at 476–77 (1988) ("It is not enough for the student to be aware of his or her abilities and learning processes; the student must be able to monitor those studying activities during the learning process and be able to make appropriate adjustments.").

102. Nancy Millich, *supra*, note 72, at 1145–48.

103. This scholarship is briefly described in Schwartz, *supra* note 83, at 468–71.

104. Gary L. Blasi, *What Lawyers Know: Lawyering Expertise, Cognitive Science, and the Functions of Theory*, 45 J. LEGAL EDUC. 313, 360 (1995) ("Just as there is a sound theoretical and empirical basis for requiring law students to engage in the active process of extracting the common patterns in appellate cases, there is an equally sound basis for requiring clinical students to keep and maintain journals reflecting on the initial experiences of practice."); M.H. Sam Jacobson, *A Primer on Learning Styles: Reaching Every Student*, 25 SEATTLE U. L. REV. 139, 142 (2001) ("When students learn how they learn best, they engage in metacognition. Metacognition involves knowing how one learns and what results one achieves from different learning processes; it involves self-regulation of cognitive activities through monitoring and making appropriate adjustments."); Paula Lustbader, *From Dreams to Reality: The Emerging Role of Law School Academic Support Programs*, 31 U.S.F. L. REV. 839, 852–83 (1997) (discussing learning process for performing tasks rather than observing and improving raw thinking).

105. Patricia A. Alexander, *Why This and Why Now? Introduction to the Special Issue on Metacognition, Self-Regulation, and Self-Regulation Learning*, 20 EDUC. PSYCHOL. REV. 369, 369 (2008).

106. Schwartz, *supra*, note 83, at 349–51, 435 n.430.

scholars mistook metacognition as meaning reflection on the subjects learned rather than on the process of thinking as its own concern.¹⁰⁷

Metacognition received more targeted attention following 2010, although always in the realm of legal research courses. Paul Callister argued for the use of a long-held taxonomy of thinking skills, commonly referred to as "Bloom's Taxonomy," as revised by David Krathwohl, to guide the structure of legal research courses.¹⁰⁸ Krathwohl's revision added metacognition as a new category in the taxonomy, defining it as "[k]nowledge about cognition in general as well as awareness of and knowledge about one's own cognition."¹⁰⁹ Metacognition, Callister contends, is essential to learning from mistakes and correcting them as a law student makes his or her way through the rigors of legal research.¹¹⁰ Callister identifies a specific competency within legal research that places metacognition as an essential skill for active construction of knowledge based on experience.¹¹¹ This connection of metacognition to schema construction is unique, even for educational research and is one that should be further pursued.

Callister suggests several types of tasks to build metacognition.¹¹² First, he recommends reiterative assignments that require self-assessment of what is working and not working.¹¹³ Second, he suggests group presentations that are critiqued by peers.¹¹⁴ Note that this activity spurs metacognition only if peers ask questions that require self-assessment of the tasks involved. Third, he recommends reflection logs and diaries, which promote metacognition only if the students document the cognitive processes of their research and

107. See, e.g., Kimberlee K. Kovach, Note, *Musings on Idea(l)s in the Ethical Regulation of Mediators: Honesty, Enforcement, and Education*, 21 OHIO ST. J. ON DISP. RESOL. 123, 158–59 (2005) ("Time should also be allotted for the reflective portion of learning, which calls on metacognition to think and reflect upon the matters learned. Approaches that can be used in this regard include tools such as student journals or diaries, 'coffee talk' or small group discussions.").

108. Paul D. Callister, *Time to Blossom: An Inquiry into Bloom's Taxonomy as a Hierarchy and Means for Teaching Legal Research Skills*, LAW LIBR. J., Spring 2010, at 191.

109. David R. Krathwohl, *A Revision of Bloom's Taxonomy: An Overview*, 41 THEORY INTO PRAC. 212, 214 (2002). See also S. Rajkumar, *The Role of Metacognition in Learning and Teaching of Physics*, SCH. SCI., Mar.–June 2010, at 48, 48.

110. Callister *supra* note 108, at 210–11.

111. *Id.*

112. Callister, *supra* note 108, at 217–18.

113. *Id.* at 217.

114. *Id.*

evaluate them for patterns of thinking behavior that were more or less successful.¹¹⁵ He concludes with asking a student to create a schema for understanding the research.¹¹⁶ These suggestions are similar to what education theorists have long considered metacognitive tasks. Unfortunately, Callister's examples do not explicitly identify the critical attributes of the tasks that make them metacognitive and therefore he does not provide enough guidance for using them as metacognitive exercises.

Adding to Callister's work, Kristina Niedringhaus called for metacognition to be part of explicit instruction within legal research courses.¹¹⁷ In addition, she provided several examples of specific exercises to build metacognition: modeling, predicting outcomes, reflection, graphic organizers, and directed student teaching.¹¹⁸ Unfortunately, while they all include active engagement of students in the learning process, some of these suggestions, such as graphic organizers and simple reflection, are not necessarily metacognitive and would not, by themselves, accomplish the goal of developing metacognition. Recording reflections in journals and blogs is metacognitive only if students use these resources to identify and reflect on their learning processes, and consequently re-direct such processes. Using journals and blogs simply to reflect on substantive content will not build metacognition.¹¹⁹

After noting that guided and structured metacognitive reflection does not appear to be in wide use yet in law school training, Tonya Kowalski tied metacognition to the critical skill of "transferring" knowledge.¹²⁰ Specifically, she described the apparent loss of skill in

115. *Id.* at 218.

116. *Id.*

117. Kristina L. Niedringhaus, *Teaching Better Research Skills by Teaching Metacognitive Ability*, 18 PERSP: TEACHING LEGAL RES. & WRITING 113, 115–17 (2010) (discussing many ideas for implementing the teaching of metacognitive skills into a legal research and writing class, including self-questioning, predicting outcomes, forcing "thinking about thinking" through unfamiliar subject areas, and modeling).

118. *Id.*

119. *See supra* notes 19–21 and accompanying text.

120. Tonya Kowalski, *Toward a Pedagogy for Teaching Legal Writing in Law School Clinics*, 17 CLINICAL L. REV. 285, 288–91, 332 (2010) [hereinafter Kowalski, *Toward*]; Kowalski, *True North*, *supra* note 99, at 51–53, 64–65; *see also* Daniela Lucangeli, Doriana Galderisi & Cesare Cornoldi, *Specific and General Transfer Effects Following Metamemory Training*, 10 LEARNING DISABILITIES RES. & PRAC. 11 (1995) (reporting on a series of studies showing that metacognitive training increased the transfer or generalizability of knowledge from one context to another).

writing from first-year writing courses to clinical practice in the second and third years. She suggested steps to aid students in using acquired skills in later contexts, including asking students to “consciously connect their learning to experience in a process often referred to as metacognitive reflection.”¹²¹ In addition, she identified three exercises to foster metacognition: transfer exercises, private memos, and journals.¹²² These reflective exercises engage metacognition when the students go beyond recording what happened or the content of what they learned and describe the strengths and weaknesses of their thinking process, take actions to correct errors or weaknesses, and propose solutions for improving their thinking processes. Elsewhere Kowalski clarifies that “deliberate effort” by students is critical to make reflection activities foster metacognition.¹²³ If students underestimate the importance of metacognitive exercises, they “may tend to see these deceptively simple devices as mere ‘fluff.’”¹²⁴

Several of the teaching activities described are beneficial and good models for other law teachers. However, it is important to note that, in our descriptions of the activities suggested by Callister, Niedringhaus, and Kowalski, there is an “if” clause that must be included for the activities to be truly metacognitive and not just engaging instructional strategies.

Anthony Niedwiecki has provided the best legal scholarship on metacognition to date.¹²⁵ His 2012 article provides a useful explanation of metacognition’s role in legal learning and includes an excellent working definition of metacognition:

Metacognition also can be described as the internal voice people hear when they are engaged in the learning process—the voice that will tell them what they have to do to accomplish a task, what they already know, what they do not know, how to match their previous learning to the new situation, when they do not understand what they are reading or learning, and how to evaluate their learning. It is

121. Kowalski, *Toward*, *supra* note 120, at 324.

122. *Id.* at 332–35.

123. Kowalski, *True North*, *supra* note 99, at 73–74.

124. *Id.* at 108.

125. *See, e.g.*, Niedwiecki, *Teaching*, *supra* note 81, at 155; Niedwiecki, *Lawyers*, *supra* note 10, at 45.

this internal reflection and conscious control of the learning process that goes to the heart of metacognition.¹²⁶

The principal focus of Niedwiecki's work is aimed at teaching techniques for improving students' metacognitive skills as part of the legal writing curriculum.¹²⁷ Niedwiecki recommends student self-assessments as tools to develop metacognitive skills. The first self-assessment tool is implemented at the beginning of the course when the students articulate the thinking processes they bring to the class, "including their past learning experiences, their own skill set, their cognitive abilities and preferences, and which skills the course requires."¹²⁸ His second method is to require the students to use a self-assessment tool immediately after submitting an assignment, in which the students identify the strengths and weaknesses of their work.¹²⁹ Once the professor's critique of the assignment is returned, the students compare their self-assessment with the professor's. Should the two assessments differ, the student must determine why they differ and evaluate the problems with their self-assessment.¹³⁰ As students go through this self-assessment routine, they not only learn legal writing in the course, they also learn the skills needed to be aware of the strengths and weaknesses of their thinking in all their courses.

Although Niedwiecki and others recognize the need for training students as self-regulated learners and are beginning to employ proper teaching methods, as of yet, few law schools teach metacognitive skills.¹³¹ Even when scholars argue for more metacognition training in law school education, they likely assume that law students, as previously successful students, already have fairly well-developed metacognitive skills and merely need more opportunities to "become more conscious metacognitive learners."¹³² Some, including civil procedure professors Andrea

126. Niedwiecki, *Teaching*, *supra* note 81, at 156–57 (citation omitted).

127. *Id.* at 193.

128. *Id.* at 186.

129. *Id.* at 188.

130. *Id.* at 188–89.

131. *Id.* at 166.

132. Miriam E. Felsenburg & Laura P. Graham, *Beginning Legal Writers in Their Own Words: Why the First Weeks of Legal Writing Are So Tough and What We Can Do About It*, 16 LEGAL WRITING: J. LEGAL WRITING INST. 223, 294–95 (2010).

Curcio, Gregory Jones, and Tanya Washington,¹³³ assert this directly, making the incorrect leap that prior academic success means high metacognitive skills. For instance, "Because law students have been successful students in other areas, we can assume that they are likely already metacognitive learners."¹³⁴ Niedwiecki's experience, however, suggests the opposite:

[S]tudents often come to law school with several metacognitive deficiencies. For example: 1) they don't know when a task is easy or difficult; 2) they do not fully understand when they are confused or do not fully understand a particular concept; 3) they do not always know how long some task may take and what they need to do; 4) they do not monitor the success of what they are doing by determining when they have studied enough; 5) they do not always use all of the relevant information; 6) they often use step-by-step approaches without thinking about why they used the particular approach; and 7) they often jump to preliminary conclusions that guide their complete analysis, even when they ultimately turn out to be incorrect.¹³⁵

The results of our study substantiate his intuition on law student skills. We cannot assume that law students, no matter how successful in prior endeavors, have achieved, either inherently or through other training, the kind of metacognitive skills so essential to top performance in the profession they have chosen.

V. WHAT IS NEXT: RESEARCH AND SOCRATIC METHOD

Three important steps must be undertaken in the process of recreating legal education to account for the vast body of knowledge recently accumulated on metacognition. In this Part, we address the need for additional empirical work involving law students and practicing lawyers and the need for more scholarship on how to teach metacognitive skills, especially with respect to the use of Socratic Method.

133. Andrea A. Curcio, Gregory Todd Jones, & Tanya M. Washington, *Does Practice Make Perfect? An Empirical Examination of the Impact of Practice Essays on Essay Exam Performance*, 35 FLA. ST. U. L. REV. 271, 280–81 (2008).

134. Felsenburg & Graham, *supra* note 132, at 295.

135. Niedwiecki, *Lawyers*, *supra* note 10, at 45.

Educational psychologists have called for researchers to “engage in more detailed study of how changes in metacognition, self-regulation, and self-regulated learning affect educational outcomes” across the board.¹³⁶ Further research may also reveal why students in various graduate disciplines perform differently in metacognition measurements. Because of the link between metacognition skills and the tasks required of law students and lawyers, further study of law students is warranted. Additional research needs to be done with more law student participants and across a wide variety of law schools, preferably over a multi-year period. Future research should determine whether there is a relationship between metacognitive abilities and the GPA earned during law school. It may be that low metacognitive abilities will correlate with a lower law school GPA and high metacognitive abilities will correlate with a higher law school GPA, even if high metacognitive skills are not evidenced by high undergraduate GPAs and test scores. If there is anything to the mantra of “thinking like a lawyer,” then metacognitive skills could be essential for the higher cognitive demands of law. It is also possible that legal education, even without any effort to address metacognition directly, results in some improvement in at least some metacognitive skills.

In addition to seeking more data on law students, scholars need to widen the scope to study law graduates and practicing attorneys. A useful endeavor is research measuring the metacognitive abilities of successful attorneys and the uses of metacognitive skills in various kinds of practice.

Research is also needed investigating the impact of deliberate instruction of metacognition in law school. The limited scholarly writing in law so far has discussed the development of metacognitive skills primarily in legal research and writing courses. Also useful would be a study of whether metacognitive skills are or can be effectively taught in substantive law courses.

Of course, this work should explore the merits of Socratic Method. According to Professor Niedwiecki, traditional legal education, even at its finest, is insufficient to teach metacognitive skills. Although he acknowledges a link between metacognition and Socratic Method, he argues that Socratic Method “teaches

136. Dale H. Schunk, *Metacognition, Self-Regulation, and Self-Regulated Learning: Research Recommendations*, 20 EDUC. PSYCHOL. REV. 463, 466 (2008).

metacognition implicitly and is only likely to help students who already have strong metacognitive strategies. For example, many professors simply do not explain the basis for the particular questions or the types of reasoning that they are asking the students [to] develop.”¹³⁷ Other commentators on legal education are virulent in the dislike of Socratic Method but seem confused about what is the fault of the method and what is the fault of the particular professor and the natural pressures of a highly competitive and highly demanding environment.¹³⁸ On the other hand, many education theorists have suggested positive associations between Socratic Method and teaching metacognition.¹³⁹ This relationship warrants further exploration and suggests that reformation of legal education

137. Niedwiecki, *Teaching*, *supra* note 81, at 163 (citations omitted); Niedwiecki, *Lawyers*, *supra* note 10, at 34–35, 44–46.

138. See Cheryl B. Preston & Hilary Lawrence, *UnProfessionalism and Bar Association Bashing*, (forthcoming MICH. J. L. REFORM, 2015) (manuscript at 143–44) (on file with authors); see also, e.g., Andrea M. Alonso & Kevin G. Faley, *The Law Firm Culture of Abuse*, VT. B.J. & L. DIG., June 1999, at 38, 39 (1999) (asking whether the increased lack of civility has its “beginnings in the brutal Socratic method used by some law school professors”); David L. Baker, *Should Law-School Applications Include a Warning Label?*, 96 IOWA L. REV. 1495, 1506 (2011) (“If the professor is not civil in grilling a student under the Socratic method or providing feedback on a research paper, the aspiring lawyer learns incivility is appropriate behavior. Similarly, a professor who is unduly flippant or critical during class of a court’s decision reinforces an attitude of incivility.”); Catherine Therese Clarke, *Mixed Manners in Courtroom Decorum*, 50 MD. L. REV. 945, 1023 (1991) (“[A]n awareness of expected standards of professionalism should exist at every level of law school training. Undoubtedly, the traditional socratic method [sic] would be ineffective in teaching the practical, professional skills of courtroom decorum.”); Paul T. Hayden, *Applying Client-Lawyer Models in Legal Education*, 21 LEGAL STUD. F. 301, 303 (1997) (suggesting that Socratic Method teaches that a “super-competent lawyer is brusque, dominating, and often condescending to those less competent (a category that certainly includes clients).”); Jennifer Howard, Clinical Essay, *Learning to “Think Like a Lawyer” Through Experience*, 2 CLINICAL L. REV. 167, 173–74 (1995) (arguing that “the psychological impact of [the Socratic Method] simultaneously injures students and distorts their preparation for the interpersonal requirements of practice”); Kerr, *supra* note 2, at 115 (characterizing Socratic Method as “a weapon used to oppress students and eradicate independent thinking”); Michael Millemann, Symposium: 1997 W.M. Keck Foundation Forum on the Teaching of Legal Ethic, *The Institutional Barriers and Advantages Panel*, 39 WM. & MARY L. REV. 489, 496 (1998) (quoting panel member, Bruce Green) (“[T]he ‘Socratic method often is inconsistent’ with civility . . .”); Michael Vitiello, *Professor Kingsfield: The Most Misunderstood Character in Literature*, 33 HOFSTRA L. REV. 955, 956 (2004) (discussing claims that “the Socratic method in the hands of professors like Kingsfield . . . causes incivility between attorneys”); Gerald F. Uelman, *Symposium on Humor and the Law*, 1992 BYU L. REV. 335, 343 (1992) (“The traditional Socratic technique, which is undoubtedly the least civil form of dialogue ever devised, will have to be discarded. The teacher will have to serve as a role model of gracious civility.”).

139. See *supra* note 4.

will not be successful if all that is added are skills courses and practice clinics.

Legal educators grasping for the cornerstones of a law school experience for the twenty-first century should take notice of the work in medical schools. Mark Quirk, in his book *Intuition and Metacognition in Medical Education*, calls for a new paradigm of medical education to incorporate teaching metacognition:

Ultimately, learning from experience requires metacognition—the ability to think about one’s thinking and feeling and to predict what others are thinking. Metacognition is a critical feature of the emerging paradigm for clinical learning that shifts the emphasis in medical education from application of knowledge learned in the classroom to preparing students to effectively practice medicine and learn from their experiences. It focuses on the learner’s ability to regulate experience with insight about self and the ability to monitor and control knowledge rather than be overwhelmed by it.¹⁴⁰

The same analysis applies to law schools. Although legal education has become more accepting of clinical and experiential learning, such pedagogy needs to be constructed with acute awareness of the need to inculcate metacognitive skills—the ability to continue learning faster and better from each future experience—and the role of substantive law courses. And, as in law, if the skill needed for practice is the ability to think, experiences in thinking (and review of how to think better next time) are essential. That may be the best and highest use of Socratic Method. Before we throw Socratic Method out with the bathwater, the relationship between it and learning metacognition must be more fully explored.

In the preface to Quirk’s book on medical schools, the father of metacognition science, Flavell, acknowledges that medical students “are not your everyday, run-of-the-mill learners.”¹⁴¹ They have the

140. QUIRK, *supra* note 69, at 4. “The persistent popular view is that the expert ‘becomes so from an overwhelming mastery of content-specific knowledge.’ On the contrary, it is proposed here that the expert becomes so from an overwhelming mastery of the skills required to continuously master content-specific knowledge. This marks a fundamental shift in our approach to medical education. . . . Although content mastery is still a critical outcome, metacognition and intuition—the processes of learning from and acting on experience—are the capabilities of medical expertise.” *Id.* at 11–12 (quoting Mark Graber, *Metacognitive Training to Reduce Diagnostic Errors: Ready for Prime Time?*, 78 ACAD. MED. 781 (2003)).

141. John Flavell, *Preface to id.*, at xv, xvi.

intelligence, discipline, and drive necessary to do what it takes to be successful. "If [medical students are] really convinced that becoming more metacognitively sensitive and skilled would make them better physicians, it is hard to believe that these 'superlearners' could not and would not do so."¹⁴² The same is true of law students. Underlying Quirk's call to action is the clear assumption that medical students' metacognition is underdeveloped, but, more importantly, it is reaffirming that metacognition is not natural in high-achieving undergraduate students and can be taught and learned.

We challenge legal educators to recognize the apparent deficiency in student metacognitive skills illustrated by our study and incorporate curricula and other pedagogical techniques to help students develop this crucial skill. As students develop metacognitive skills, they not only gain the ability to become successful attorneys, but also to contribute to the success of the overall legal system and, with that, to the success of government and society.

142. *Id.*

Appendix A

Table 1

Descriptive Statistics for Age and Gender by Group

	Gender		Age	
	Male	Female	Mean	Standard Deviation
Business	62	11	31.03	6.41
Education	15	38	34.28	8.23
Law	90	60	25.72	3.64

Table 2

Descriptive Statistics for MAI Scores (Knowledge, Regulation and Total) by Group

Program	n	Knowledge		Regulation		Total	
		Mean	SD	Mean	SD	Mean	SD
Business	73	65.92	7.79	125.08	16.44	191.00	22.79
Education	53	68.32	7.10	134.11	17.61	202.43	22.38
Law	150	68.06	7.28	116.01	15.98	184.07	21.75

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Teaching "Thinking Like a Lawyer"

Table 3

One-Way Analysis of Co-variance for MAI Scores (Knowledge, Regulation, and Total)

	df	Sum of Squares	Mean Square	F
Knowledge				
Age	1	8.14	8.14	0.15
Between Groups	2	252.08	126.04	2.28
Within Groups	269	14871.58	55.29	
Regulation				
Age	1	1088.01	1088.01	4.08*
Between Groups	2	6733.67	3366.83	12.63**
Within Groups	269	71700.79	266.55	
Total Score				
Age	1	907.92	907.92	1.85
Between Groups	2	7005.45	3502.73	7.13**
Within Groups	269	132245.36	491.62	

* p<0.05, **p<0.01

Table 4

Tampane Post Hoc Analysis of Regulation and Total Score Mean Differences by Program

		Regulation		Total	
Group (I)	Group (J)	Mean	Standard	Mean	Standard
		Difference (I-J)	Error	Difference (I-J)	Error
Business	Education	-9.031*	3.091	-11.434*	4.071
	Law	11.794**	2.983	10.416*	4.279
Education	Business	9.031*	3.091	11.434*	4.071
	Law	20.827**	3.323	21.850**	4.544
Law	Education	-20.827**	3.323	-21.850**	4.544
	Business	-11.796*	2.983	-10.416*	4.279

* p<0.05, **p<0.01